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EXAMINER

LE, KIMLIEN T

ART UNIT PAPER NUMBER

2653

DATE MAILED: 07/28/2004

#6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/784,061

Applicant(s)

OGATA, NOBUO

Examiner

Kimlien T Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 35-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11- 34 is/are rejected.
- 7) ☒ Claim(s) 49-52 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2.3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### **DETAILED ACTION**

1. The restriction and election of Species has been rewritten to take into account

Applicant's comments in the last response, dated April 27, 2004.

I. Claims 1-34, 49-52 drawn to the groove depth of the optical recording medium, classified in class 369, subclass 120.

II. Claims 35-48, drawn to the reproducing powers of the recording medium, classified in class 369, subclass 116.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, Group II has separate utility such as with an optical recording medium that does not require the groove depth details as required by Group I.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Moreover, if Applicant elects Group I, then Applicant must further elect one of the following patentably distinct species:

Species A: The groove depth is dependent on the photodetector.

Species B: The groove depth is dependent on the refractive indexes and the wavelength.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable

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thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

2. Applicant's election of Group I and Species B (claims 11-18, 19-27, 28-34, 49-50 and 51-52) in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically

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point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 1-10 and 35-48 are withdrawn from further consideration. Election was made **without** traverse in Paper No.5.

### *Drawings*

4. The drawings are objected to because in Figs. 5,6 and 7, "Tarcking" should be -- Tracking--. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-16 and 28-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Utsunomiya et al. (U.S. Patent 6,040,030).

Regarding claim 11, Utsunomiya et al. shows an optical recording medium, comprising: lands and grooves, the optical recording medium at least being reproducible by either of i) a light beam having a first wavelength  $\lambda_1$ , and ii) a light beam having a second wavelength  $\lambda_2$  which is shorter than the first wavelength  $\lambda_1$ , wherein the groove depth  $d$  satisfies the conditions of:  $\lambda_1/n_1 \times (3/64) \leq d \leq \lambda_1/n_1 \times (13/64)$ ; and  $\lambda_2/n_2 \times (4/64) \leq d \leq \lambda_2/n_2 \times (12/64)$ , wherein  $n_1$  and  $n_2$  indicate refractive indexes of the optical recording medium for the first wavelength  $\lambda_1$  and the second wavelength  $\lambda_2$  respectively (Fig. 1; See also column 11, lines 1-5; column 12, lines 45-55).

Regarding claim 12, Utsunomiya et al. shows the optical recording medium as set forth in claim 11, wherein: the first wavelength  $\lambda_1$  is set within a range of from 630 nm to 680 nm (Fig. 1; See also column 11, lines 1-5; column 12, lines 45-55).

Regarding claim 13, Utsunomiya et al. shows the optical recording medium as set forth in claim 11, wherein: the second wavelength  $\lambda_2$  is set within a range of from 390 nm to 430 nm. (Fig. 1; See also column 11, lines 1-5; column 12, lines 45-55).

Regarding claim 14, Utsunomiya et al. shows the optical recording medium as set forth in claim 11, wherein the groove depth  $d$  satisfies the conditions of:  $\lambda_1/n_1 \times (3/64) \leq d \leq \lambda_1/n_1 \times (13/64)$ ; and  $\lambda_2/n_2 \times (4/64) \leq d \leq \lambda_2/n_2 \times (10/64)$  (Fig. 1; See also column 11, lines 1-5; column 12, lines 45-55).

Regarding claim 15, Utsunomiya et al. shows the optical recording medium as set forth in claim 11, wherein: information can be recorded on both the lands and grooves (Abstract).

Regarding claim 16, Utsunomiya et al. shows the optical recording medium as set forth in claim 11, wherein: the lands and grooves are formed in virtually same width (Fig. 1; See also column 17, lines 60-65).

Regarding claim 28, Utsunomiya et al. shows an optical recording medium, comprising: lands and grooves, the optical recording medium at least being reproducible by either of i) a light beam having a first wavelength  $\lambda_1$ , and ii) a light beam having a second wavelength  $\lambda_2$  which is shorter than the first wavelength  $\lambda_1$ , wherein the groove depth  $d$  satisfies the conditions of:  $\lambda_1/n_1 \times (3/64) \leq d \leq \lambda_1/n_1 \times (13/64)$ , wherein  $n_1$  indicates a refractive index of the optical recording medium for the first wavelength  $\lambda_1$ , and a reflective index  $r_1$  of the optical recording medium with respect to the first wavelength  $\lambda_1$  is smaller than a reflective index  $r_2$  with respect to the second wavelength  $\lambda_2$  (Fig. 1; See also column 11, lines 1-5; column 12, lines 45-55).

Regarding claim 29, Utsunomiya et al. shows the optical recording medium as set forth in claim 28, wherein: the first wavelength  $\lambda_1$  is set within a range of from 630 nm to 680 nm (Fig. 1; See also column 11, lines 1-5; column 12, lines 45-55).

Regarding claim 30, Utsunomiya et al. shows the optical recording medium as set forth in

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claim 28, wherein: the second wavelength  $\lambda_2$  is set within a range of from 390 nm to 430 nm.

(Fig. 1; See also column 11, lines 1-5; column 12, lines 45-55).

Regarding claim 31, Utsunomiya et al. shows the optical recording medium as set forth in claim 28, wherein: information can be recorded on both the lands and grooves (Abstract).

Regarding claim 32, Utsunomiya et al. shows the optical recording medium as set forth in claim 28, wherein: the lands and grooves are formed in virtually same width (Fig. 1; See also column 17, lines 60-65).

Claims 19-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogata et al. (U.S. Patent 5,940,364).

Regarding claim 19, Ogata et al shows the optical recording medium, comprising: lands and grooves, the optical recording medium at least being reproducible by either of a light beam having a first wavelength  $\lambda_1$ , and a light beam having a second wavelength  $\lambda_2$  which is shorter than the first wavelength  $\lambda_1$ , wherein the grooves are formed in width within a range of from 0.5  $\mu\text{m}$  to 0.6  $\mu\text{m}$  and in depth  $d$  within a range of from 19.4 nm to 47.5 nm (Fig. 1; See also column 15, lines 41-50; column 17, lines 10-20).

Regarding claim 20, Ogata et al shows the optical recording medium as set forth in claim 19, wherein: the grooves are formed in depth  $d$  within a range of from 19.4 nm to 45 nm (Fig. 1; See also column 15, lines 41-50, column 17, lines 10-20).

Regarding claim 21, Ogata et al shows the optical recording medium as set forth in claim 19, wherein the grooves are formed in depth  $d$  within a range of from 23.7 nm to 39.5 nm (Fig. 1; See also column 15, lines 41-50; if  $\lambda$  is 458 nm,  $\lambda/17$  is 26nm).

Regarding claim 22, Ogata et al shows the optical recording medium as set forth in



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claim 19, wherein: the first wavelength  $\lambda_1$  is set within a range of from 630 nm to 680 nm (Fig. 1; See also column 15, lines 41-50; column 17, lines 10-20).

Regarding claim 23, Ogata et al shows the optical recording medium as set forth in claim 19, wherein: the second wavelength  $\lambda_2$  is set within a range of from 390 nm to 430 nm (Fig. 1; See also column 15, lines 41-50; column 17, lines 10-20).

Regarding claim 24, Ogata et al shows the optical recording medium as set forth in claim 19, wherein: information can be recorded on both the lands and grooves (Fig. 1; See also column 15, lines 41-50; column 17, lines 10-20).

Regarding claim 25, Ogata et al shows the optical recording medium as set forth in claim 19, wherein: the lands and grooves are formed in virtually same width (Fig. 1; See also column 2, lines 45-50; column 18, lines 50-55).

Regarding claim 26, Ogata et al shows the optical recording medium as set forth in claim 25, wherein an interval between centers of adjacent grooves (track pitch) is not less than 1.95 times of a beam spot diameter of the light beam having the second wavelength  $\lambda_2$  (column 18, lines 50-60).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim 18 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utsunomiya et al (U.S. Patent 6,040,030) in view of Mieda et al. (U.S. Patent 5,414,652).

With regard to claims 18 and 34, Utsunomiya et al shows all the features of claims 11 and 28. Utsunomiya et al does not show that the optical recording medium is a super-resolution magnetic medium. However, Mieda et al teaches that the optical recording medium is a super-resolution magnetic medium (Fig. 10; See also column 6, lines 10-16). Therefore, it would have been obvious to utilize the land and groove lay out of Utsunomiya et al on a super-resolution magnetic medium as taught by Mieda et al. The rationale is as follows: one of ordinary skill in the art at the time of the invention would have been motivated to utilize the land and groove lay out of Utsunomiya et al on a super-resolution magnetic medium as taught by Mieda et al, in order to provide a high density.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata et al (U.S. Patent 5,940,364) in view of Mieda et al. (U.S. Patent 5,414,652).

With regard to claim 27, Ogata et al shows all the features of claim 27 except that the optical recording medium is a super-resolution magnetic medium. However, Mieda et al teaches that the optical recording medium is a super-resolution magnetic medium (Fig. 10; See also column 6, lines 10-16). Therefore, it would have been obvious to utilize the land and groove lay out of Ogata et al on a super-resolution magnetic medium as taught by Mieda et al. The rationale is as follows: one of ordinary skill in the art at the time of the invention would have been motivated to utilize the land and groove lay out of Ogata et al on a super-resolution magnetic medium as taught by Mieda et al, in order to provide a high density.

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Claim 17 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utsunomiya et al (U.S. Patent 6,040,030) in view of Ogata et al (U.S. Patent 5,940,364).

With regard to claims 17 and 33, Utsunomiya et al shows all the features of claims 16 and 32. Utsunomiya et al does not show the optical recording medium, wherein an interval between centers of adjacent grooves is not less than 1.95 times of a beam spot diameter of the light beam having the second wavelength  $\lambda_2$ . However, Ogata et al teaches that an interval between centers of adjacent grooves (track pitch) is not less than 1.95 times of a beam spot diameter of the light beam having the second wavelength  $\lambda_2$  (column 18, lines 50-60). Therefore, it would have been obvious to provide Utsunomiya et al with an interval between centers of adjacent grooves (track pitch) is not less than 1.95 times of a beam spot diameter of the light beam having the second wavelength  $\lambda_2$  as taught by Ogata et al. The rationale is as follows: one of ordinary skill in the art at the time of the invention would have been motivated to provide Utsunomiya et al with an interval between centers of adjacent grooves (track pitch) is not less than 1.95 times of a beam spot diameter of the light beam having the second wavelength  $\lambda_2$ , in order to prevent a distortion in waveform of the tracking error signal.

*Allowable Subject Matter*

7. Claims 49-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

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In claims 49 and 51, the limitations of a photodetector for receiving light reflected from the optical recording medium, wherein the photodetector has a receiving light sensitivity  $s_2$  with respect to the second wavelength  $\lambda_2$  satisfying the condition of  $s_2/s_1 \geq 0.73$ , wherein  $s_1$  is a receiving light sensitivity of the photodetector with respect to the first wavelength  $\lambda_1$ , taken in conjunction with the limitations of claims 11 and 19, respectively, are not anticipated by, nor made obvious over, the prior art of record.

In claims 50 and 52, the limitations of a photodetector for receiving light reflected from the optical recording medium, wherein the photodetector has a receiving light sensitivity  $s_2$  with respect to the second wavelength  $\lambda_2$  satisfying the condition of  $s_2/s_1 \geq 0.57$ , wherein  $s_1$  is a receiving light sensitivity of the photodetector with respect to the first wavelength  $\lambda_1$ , taken in conjunction with the limitations of claims 14 and 21, respectively, are not anticipated by, nor made obvious over, the prior art of record.

### *Cited References*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references are all related to optical recording media.

### *Points of Contact*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimlien T Le whose telephone number is 703 305 3498. The examiner can normally be reached on M-F 8a.m-5p.m

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on 703 305 6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimlien Le

  
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